belkin

Secure 4/8 port KM Switch

User Manual

Models:
F1DN104K – Advanced Secure 4-Port Keyboard / Mouse (KM) Switch
F1DN108K – Advanced Secure 8-Port Keyboard / Mouse (KM) Switch

Document Number 8820-01342 Rev. A02

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INTRODUCTION

Thank you for purchasing this Belkin Advanced Secure Keyboard/Mouse (K/M) Switch. This KM Switch is designed for use in secure environments across wide security gaps. This product provides the highest security safeguards and features, meeting current and future cyber prevention requirements.

This User Manual provides all the details you'll need to install and operate your new product, and also to troubleshoot it in the unlikely event of a problem.

What is a KM (Keyboard / Mouse) Switch?

There are many cases where one user needs to work simultaneously with more than one computer. In some cases users have multiple displays attached to multiple computers. The challenge is how a single user can interact with multiple computers with multiple displays each. KVMs are not suitable for these users as they are designed to switch displays; allowing the user to only see and manage one target device at a given time. Using the Belkin Secure KM users can see all the connected computers at the same time and easily decide on which computer he wants to work.

A KM switch is a device that switches a single keyboard and mouse between multiple computers. A KM switch is essentially a KVM switch without the video switching - all displays are continuously connected to their respective computers; so that all connected device can be managed seamlessly, in real time. Multiply displays can be connected to each computer that is connected to the Belkin Secure KM. The Belkin Secure KM is designed to have up to 8 computers connected and working simultaneously in any possible monitor setup. The configuration of the Belkin Secure KM can be done by using the KM presets or by using the easy to use configuration tool.

The Belkin Secure KM supports Windows, Linux and Mac operating systems. Switching is done simply by dragging your mouse from one window to another having it disappearing from one machine and appearing on another. Multi Displays connected to the same computers are only supported by Windows based operating systems.

Package Contents

- Belkin Advanced Secure KM Switch
- 12V 1.5A DC Power Supply (F1DN104K only)
- Power Cord (F1DN108K only)
- Interchangeable Port Color Chips
- Port-Naming Labels
- Belkin USB configuration cable
- User Manual

Important: This product is equipped with always-on active anti-tamper system. Any attempt to open the enclosure may activate the anti-tamper system and render the unit permanently inoperable. If the unit's enclosure appears disrupted or if all the port LEDs flash continuously, please call Belkin Technical Support at **1 (800) 282-2355** .

Important Security Note: If you are aware of potential security vulnerability while installing or operating this product, we encourage you to contact us immediately at the following email address: **gov_security@belkin.com**

Security Features

The Belkin Secure KM is the most advanced and secure, commercially available KM Switch in the market today. This product is a derivative of the high security Belkin KVM products used in the many high security government, defense and military organizations. Below is a summary of some key security features incorporated into this product:

Unidirectional Data Paths

Optical diodes are used to enforce unidirectional data flow from the peripheral devices to computers preventing potential leakage paths between computers, even in the severe threat of two infected computers attacking the KM.

No Cross Cables, No Shared Resources

There are no cables connecting two computers. This product is designed to securely operate even when peripheral devices are vulnerable to signaling attacks and connected computers are infected by malicious code.

Dedicated Processors for Emulation

The Belkin Secure KM features a dedicated processor per computer port to emulate peripheral devices. This keeps each computer running on different security levels, physically separated and secure at all times, and prevents any unintended data leakage between computers even when computers are infected by malicious code.

USB Ports Protection

Console USB ports are protected from the use of storage and other unsafe USB devices through strong filtering (independent of other computer protection means). Unqualified devices are rejected when connected to the Belkin Secure KM. Only mouse and keyboard data are passed through.

Heavy-duty Tamper-Resistant Enclosure

The Belkin Secure KM uses one-piece aluminum enclosure (F1DN104K) thick steel components (F1DN108K) to protect the product from physical tampering and to minimize radiated electromagnetic emissions that can be snooped or intercepted.

Active Always-On Anti-Tampering

Active always-on chassis anti-tampering system prevents the KM electronic circuitry from being accessed and tampered with by permanently disabling the product once tampering is detected.

Tamper-Evident Label

A holographic security tamper-evident label is placed on the enclosure to provide a visual indication if the Switch has been opened or compromised.

Please note:
Belkin Secure KM Products cannot be upgraded, serviced or fixed.

Secure Packaging

"Tear away" packaging ensures secure delivery of the Switch as it is routed to the end user. The recyclable packaging also breaks down flat, simplifying the cleanup process.

Non-Reprogrammable Firmware

The product features custom firmware that is not reprogrammable, preventing the ability to remotely attack the KM control logic.

Common Criteria EAL-4 Listing

The product is the only KM in the market that is listed by the Common Criteria organization. It is Common Criteria validated to EAL 4+ (Evaluation Assurance Level 4) to assure the highest level of protection. Product complies with a standard higher than NIAP Protection Profile 2.1 for Peripheral Sharing Devices.

Tamper-Proof Hardware

All integrated circuits are soldered directly to the printed circuit board to prevent tampering with the components.

No Memory Buffer

The lack of memory buffers prevents unintentional transfer of keystrokes or other data when switching between computers.

LED Indicators

Each port button number illuminates to indicate that the console currently controls the corresponding computer. As a port selector is pushed, or if the mouse cursor crosses between displays associated to different computers or networks, the LED number will light up.

Operational Features

The Belkin Secure KM was designed with the user in mind for today's IT environment. Below is a summary of some key operational features incorporated into the Product.

Support for multiple head

The Belkin Secure KM can be easily configured to support dual, triple and up to 16 head computers through a signed software driver. Note that single head installation does not need any software installation.

Extensive administrator setup options

Administrator mode provides many customizable settings from display arrangement and size to cursor speed and acceleration.

Seamless Cursor Switching (SCS)

SCS allows the Belkin Secure KM to switch automatically between computers once mouse cursor crosses display borders. The switching is seamless between multiple computers with cursor movement.

Extensive administrator setup options

Administrator mode provides many customized settings, which includes display arrangement, monitor size, cursor speed and mouse acceleration. Please contact Belkin for the KM Creator and KM Loader customization software.

Integrated Mounting Rails

The Belkin Secure KM features an integrated mounting system for easy under-the-desk, or side-wall mounting.

Desktop Controller Unit (DCU) Support

With the Belkin Secure KM it is possible to connect an optional DCU (sold separately) device to control your KM Switch from up to 50 feet away, which reduces desktop clutter and increases work space. The DCU gives clear and easy to understand indication of which network is currently active. Please refer to the DCU user manual for product functionality or contact Belkin for more details regarding DCU product information and availability. Belkin DCU Part Numbers: F1DN001R, F1DN002R, and F1DN003R

Audio Support

The Belkin Secure KM supports audio out switching. Microphone switching is not supported to prevent analog leakages through audio ports.

Port Coloring

The included color chips can be inserted into each port-selector button. Colors can be associated with an established network to facilitate port identification and reduce user switching error.

Port Naming

The included network-name labels can be placed in the area underneath the port-selector button to facilitate port identification and reduce user switching error. Blank labels are also provided for network names that are not listed on the included network-name labels.

Increased Reliability

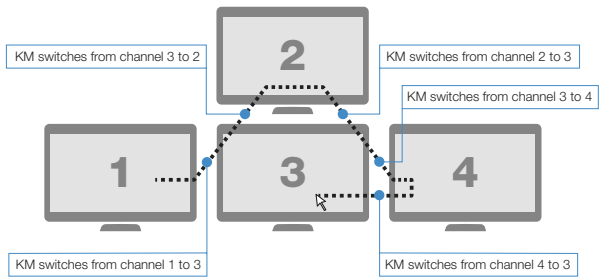
Using a new, advanced anti-tampering battery with extremely low self-discharge rate the life expectancy of the switch has been increased dramatically to over 25 years.

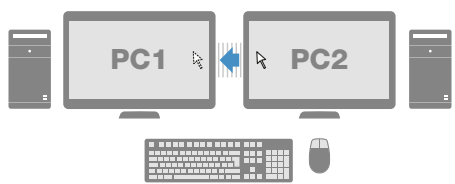
What is Seamless Cursor Switching?

Seamless Cursor Switching (SCS) is implemented in Belkin Secure KMs to enable seamless cursor and keyboard switching between multiple displays. SCS allows administrators to configure any desired multiple display configuration using the same, or different size displays and resolutions. Simply move the mouse cursor across neighboring displays to switch between connected computers.

Refer to the example in the figure on the right. Assume that computer #1 is connected to the left display, computer #2 is connected to the top display, computer #3 is connected to the center bottom display and computer #4 is connected to the display on the right side. In this example all four displays are identical. SCS allows the user to move the mouse cursor across the four displays while automatically switching the shared peripherals (keyboard, mouse and audio) based on the current cursor location. For example, when the user moves the cursor from the left display to the center bottom display, the KM identifies the display border crossing between these two displays and switches the keyboard and mouse to computer #3.

SCS is now further enhanced with the inclusion of pointing device drivers to support dual, triple and up to 16 head computers. With this technology, user workstations may be integrated with any combination of single, dual, triple and quad head computers. SCS Configurator software enables the user administrator to easily configure any set of display sizes, resolutions, geometry and physical arrangements.





Equipment Requirements

Cables

Belkin highly recommends you use you use Belkin Cable Kits for your product to help ensure superior security and performance. These cables offer the highest quality possible and optimal data transmission.

One Cable Kit is required per connected computer.

Note: Due to USB signal limitations, the cable length cannot exceed 15 feet (4.6m) unless a USB extender is used.

Belkin USB with Audio Cables:
F1D9022b06 – 6ft (1.8m)
F1D9022b10 – 10ft (3m)

Belkin USB Cables:
F3U133-06 – 6 ft. (1.8m)
F3U133-06 – 10 ft. (3m)
Belkin Audio Cables:
F8V203tt06-E3-P– 6 ft. (1.8m)

User Operating-System (OS) Support

The Belkin Secure KM is compatible with computers running on, the following OS platforms:

- Windows® 2000
- Windows XP (Home/Professional)
- Windows 2003 Server
- Windows 7
- Windows 8
- Windows Vista®
- Red Hat® Linux®
- Mac OS® X v.10.6 and higher

User Multiple-head Operating-System (OS) Support

The Belkin Secure KM multiple-head driver is compatible with computers running on the following OS platforms:

- Windows® 2000
- Windows XP (Home/Professional)
- Windows 2003 Server
- Windows 7
- Windows 8
- Windows Vista®

Administrator setup Operating-System (OS) Support

The Belkin Secure KM administrator setup software suite is compatible with computers running on the following OS platforms:

- Windows® 2000
- Windows XP (Home/Professional)
- Windows 2003 Server
- Windows 7
- Windows 8
- Windows Vista

PS/2 Keyboard console port (F1DN104K only)

The Belkin F1DN104K Secure KM PS/2 keyboard console port is compatible with the following types of devices:

- Standard PS/2 keyboard; and:
- Bar-code readers emulating USB keyboard.
- Standard PS/2 mouse.

USB Mouse console port

The Belkin Secure KM USB mouse console port is compatible with the following types of devices:

- Standard USB mouse (excluding USB hubs or other USB functions in composite device); or
- Standard USB keyboard or Standard KVM Extender composite device with keyboard/mouse functions

Desktop Controller Unit

The Belkin Secure KM is compatible with the following types of Desktop Controller Unit (DCU):

- F1DN104K is compatible with F1DN001R, F1DN002R and F1DN003R.
- F1DN108K is compatible only with F1DN003R.

PS/2 Mouse console port (F1DN104K only)

The Belkin F1DN104K Secure KM PS/2 mouse console port is compatible with the following types of devices:

User Audio Devices

The Belkin Secure KM is compatible with the following types of user audio devices:

- Stereo headset; or:
- Amplified stereo speakers.

Programming Cable

Special programming cable is needed to connect the product to the administrator PC and configure it. Cable is supplied with each product. If needed, please contact Belkin Sales or Technical Support for additional cable.

Safety Precautions

Please read the following safety precautions carefully before using the Belkin Secure KM:

- Before cleaning, disconnect the product from DC (F1DN104K) or AC power (F1DN108K).
- Be sure not to expose the product to excessive humidity.
- Be sure to install the product on a clean secure surface.
- Do not place the DC/AC power cord in a path of foot traffic.
- If the product is not used for a long period of time, remove the product's wall-mount power supply from the main jack (F1DN104K).
- The product should be stored and used only in temperature and humidity controlled environments as defined in the product's environmental specifications.
- The wall-mount power supply used with this product should be the model supplied by the manufacturer or an approved equivalent provided by Belkin or an authorized service provider. The use of improper power source will void product warranty (F1DN104K only)
- If one of the following situations occurs, get the product checked by a qualified service technician:
  - The product's power supply is overheated, damaged, broken, causes smoke or shortens the main power socket.
  - Liquid penetrates the product's case.
  - The product is exposed to excessive moisture or water.
  - The product is not working properly even after carefully following the instructions in this user's manual.
  - The product has been dropped or is physically damaged.
  - The product has obvious signs of breakage or loose internal parts.

F1DN104K Front Panel Features

1	Port Selector	3	Color chip
2	LED Indicator	4	Tamper Evident Label

F1DN104K Back Panel Features

1	DCU port	4	Console USB keyboard port	7	Computer audio port
2	Console Audio Out jack	5	Console PS/2 keyboard port	8	Computer USB KM port
3	Console USB mouse port	6	Console PS/2 mouse port	9	DC power input jack

F1DN108K Front Panel Features

1	Port Selector	**3**	Color chip
2	LED Indicator	**4**	Tamper Evident Label

F1DN108K Back Panel Features

1	DCU port	**4**	Console USB keyboard port	**7**	AC power input jack
2	Console Audio Out jack	**5**	Computer audio port	**8**	AC power switch
3	Console USB mouse port	**6**	Computer USB KM port		

Tamper Evident Label

The Belkin Secure KM uses a holographic tamper evident label to provide visual indications in case of an enclosure intrusion attempt. These labels indicate white dots or the text “VOID” once removed. When opening product packaging inspect the four tampering evident labels.

IMPORTANT NOTICE:

If for any reason the tamper-evident label is missing, appears disrupted, or looks different than the example shown here, please call Belkin Technical Support at **(800) 282-2355**.

Belkin Holographic Tampering Evident Label

Active Anti-Tampering System

The Belkin Secure KM is equipped with always-on active anti-tampering system. If mechanical intrusion is detected by this system, the product will be permanently disabled and LED will flashing continuously. If a DCU is used, the DCU will indicate that the Belkin Secure KM has been tampered with.

If the product indicates a tampered state (all LEDs flashing continuously) - please call Belkin Technical Support and avoid using the product

Product Specifications

Part No.	F1DN104K (4-port version) F1DN108K (8-port version)
Enclosure	Metal enclosure with high-impact aluminum faceplate
Power Requirements	(F1DN104K) 12V DC, 1.5A (maximum) power adapter with center-pin-positive polarity (F1DN108K) 100–240VAC, 0.9A Freq. 50/60Hz
AC Input Voltage	100 to 240VAC
No. of Users Supported	1
No. of Computers Supported	(F1DN104K) 4 (F1DN108K) 8
Console Keyboard Input	(F1DN104K) USB Type A + PS/2 Mini-DIN 6-pin female connector (F1DN108K) USB Type A connector
Console Mouse Input	(F1DN104K) USB Type A + PS/2 Mini-DIN 6-pin female connector (F1DN108K) USB Type A
Console Headset / Speaker output jack	3.5mm female
Computer Keyboard/Mouse Ports	USB Type B
Computer Audio Input Jack	3.5mm female

Port Selector push-buttons	(F1DN104K) 4 (F1DN108K) 8
Channel Selected LED Indicators	(F1DN104K) 4 (F1DN108K) 8
User Channel Selection Methods	Front panel push-buttons, SCS,
Administrator Settings	Display physical size, display resolution X / Y, display orientation (portrait /landscape), display head (1st, 2nd,16th), display location (coordinates), mouse speed (1-10), mouse acceleration (1-10), SCS enable / disable, prevent transition while dragging – enable / disable.
Operating Temp	32° to 104° F (0° to 40° C)
Storage Temp	-4° to 140° F (-20° to 60° C)
Humidity	0-80% RH, non-condensing
MTBF	14 years (per MIL-HDBK-217E)
Warranty	3 years
Dimensions	(F1DN104K) 12.5 (W) x 6.4 (D) x 1.7 (H) inch / 317.5 (W) X 162.56 (D) X 43.18 (H) mm (F1DN108K) 17.25 (W) x 7.95 (D) x 1.7 (H) inch / 438.15 (W) X 201.93 (D) X 43.18 (H) mm
Weight	(F1DN104K) 4 lbs. / 1.81 KG (F1DN108K) 9 lbs / 4.08KG

Before Installation

Unpacking the Product

Before opening the product packaging, inspect the packaging seal condition to assure that product was not accessed or tampered during delivery. If the packaging seal looks suspicious, contact Belkin Technical Support and do not use the product.

After removing the packaging seal, please inspect packaging content to verify that required components included as listed in the Package Contents of this manual.

After the Belkin Secure KM is removed from its packaging materials, inspect the four tampering-evident labels to assure that product is properly sealed. If one or more label is damaged or missing, contact Belkin Tech Support and do not use that product.

Where to place the Switch:

The enclosure of the Switch is designed for desktop or under-the-desk mount configurations. An optional Mount Kit (Belkin part number F1D006) is available for the F1DN104K. Rack-mount brackets are included with the F1DN108K.

Consider the following when deciding where to place the Switch:

- Access to the front-panel push buttons is not required, since the switching can be done through the Seamless Cursor Switching (SCS) interface.
- The lengths of the cables attached to your keyboard and mouse
- The location of your computers in relation to your console
- The lengths of the cables you use to connect your computers to the Switch

Warning: Avoid placing cables near fluorescent lights, air-conditioning equipment, or machines that create electrical noise (e.g., vacuum cleaners).

Connection and Installation

Step 1 – Connecting the Console Devices to the Belkin Secure KM

Warning: Before attempting to connect anything to the Switch, or your computers, please ensure that all computer equipment and devices are powered off.

1.1 Connect each monitor directly to the computers. Optionally for easier referencing, label each computer and monitor coupled together.

1.2 Connect the user keyboard to the Console section of the Switch. For USB-type keyboards, connect to the USB port marked “Keyboard.” For PS/2-type keyboards, connect to the PS/2 port marked “PS2 K.”

1.3 Connect the user mouse to the Console section of the Switch. For USB-type mice, connect to the USB port marked “Mouse.” For PS/2-type mice, connect to the PS/2 port marked “PS2 M.”

Note: The Switch will not operate properly if the keyboard and mouse are not connected to their respective locations as listed on the steps above. Additionally, keyboards with integrated USB hubs, card-readers, storage devices or multimedia extensions are not supported. Only keyboard functions are supported for devices connected to the keyboard ports while mouse USB console port supports both keyboard and mouse.

Connect a user headphone or amplified speakers to the audio output port marked “Audio” on the Console section of the Switch.

Caution: Do not connect a microphone to the audio output port.

Step 2 – Connecting Computers to the Belkin Secure KM

2.1 Connect each computer to the Switch ports marked “K/M” with standard USB A to B cables (Belkin part number F3U133-06 or F3U133-10). Each USB cable can be connected to any free USB port in the computer.

Notes: If the quantity of computers is less than the number of K/M ports, connect the computers sequentially (K/M port 1, K/M port 2, etc.). The USB cable must be connected directly to a free USB port on your computer with no USB hubs or other devices in between.

2.2 Connect each audio cable (Belkin part number F8V203tt06-E3-P) from the Switch to each computer’s audio output (lime green color) or line output (blue color) jacks.

Step 3 – Powering Up

3.1 Power on all of the monitors.

3.2 Connect the Belkin Secure KM to the cable DC plug of the 12V 1.5A external AC/DC power supply (F1DN104K).

3.3 Connect the power cable IEC power plug to KM switch AC power inlet and then the power plug to a nearby wall outlet. Turn on the power switch located near the AC power inlet.

3.4 Power up all the attached computers, and check for display and peripheral functionality. All computers can be powered on.

Notes: Your computers should recognize the Belkin Secure KM and automatically install the HID USB driver if necessary.

You should be able to move the mouse cursor on the primary display connected to computer #1. Check to see that the keyboard and mouse are working normally on each computer. Repeat this check with all occupied ports to verify that all computers are connected and responding correctly.

If you encounter an error, check your cable connections for that computer and reboot. If the problem persists, please refer to the Troubleshooting section in this User Manual.

Color Code Chip Installation

The Belkin Advanced Secure KM Switch's port-selector buttons can be color-coded for easier identification. Refer to the installation instructions below.

Note: You may have to remove the existing black color chip first.

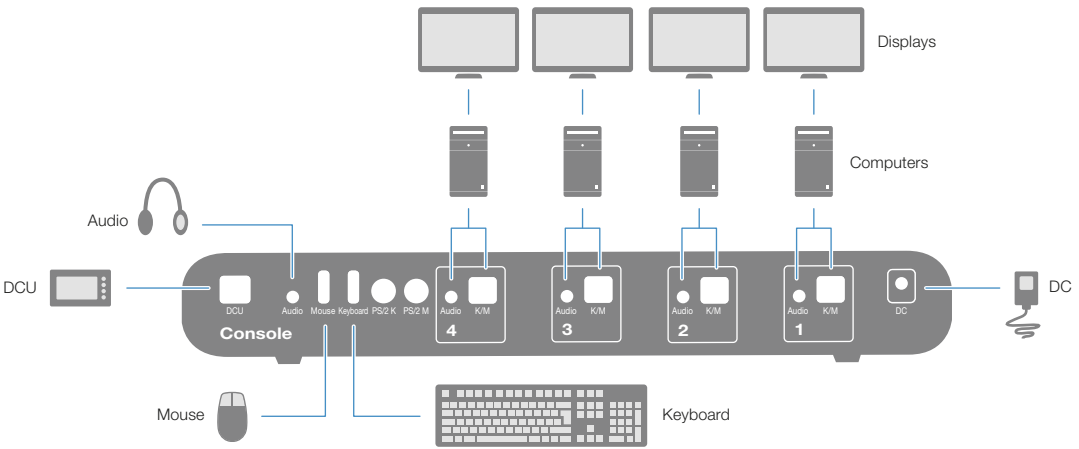
Insert color chip

Remove color chip with a standard paperclip

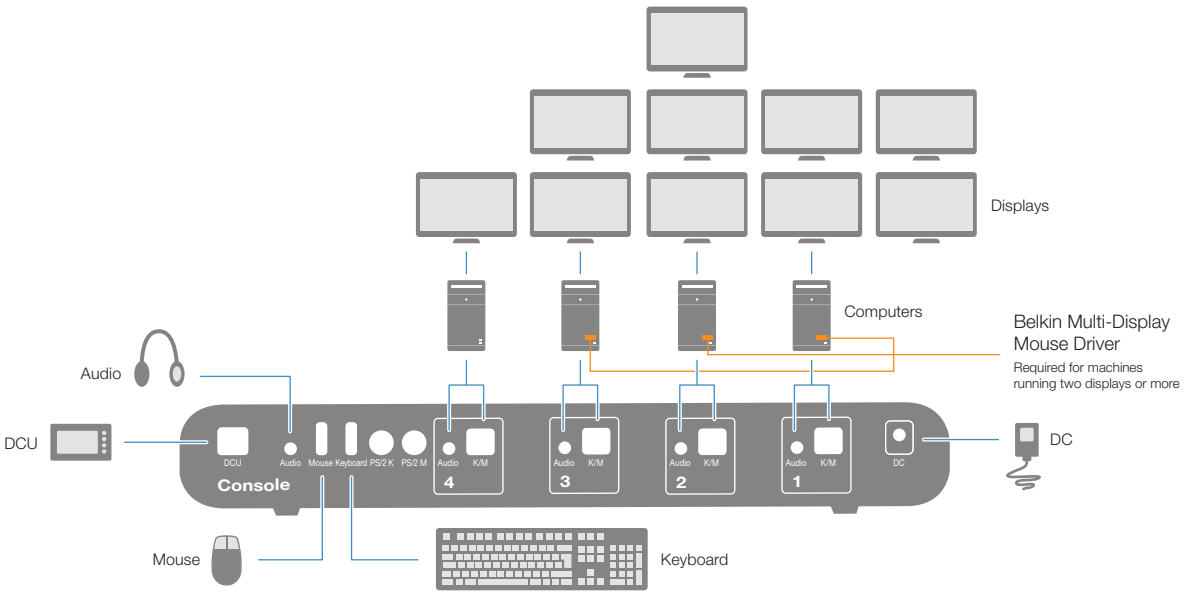
Port Name Label

The included network-name labels can be placed in the area underneath the port-selector buttons for port identification. Blank labels are also provided.

F1DN104K Typical system installation



F1DN104K typical installation with multiple displays per connected PC



Advanced Setup

Once the Belkin Secure KM is connected and powered on, essential operational settings needs to be configured.

The first and most important setting of the Switch is the monitor positioning. It is essential that the Switch configuration will match the actual positioning on the monitors.

There are two ways to configure the Switch with the actual monitor setup:

- Select one of the predefined setups
- Create a configuration file and load it to the Switch

Selecting one of the predefined setups

To load one of the default settings available in the non-volatile memory of the Switch:

1. Select a default configuration type on the console keyboard by pressing the following keys in this sequence: Control, Control, F11, Fx (refer to figure 4). For example: The key sequence Control, Control, F11, F2 will set the displays laid out horizontally, with the left-most display to computer #1, the second display as computer #2, the third display as computer #3, and the fourth display to computer #4.
2. Power-cycle the Switch by disconnecting the power plug and reconnecting to the Switch.
3. The Switch will boot with the new configuration.

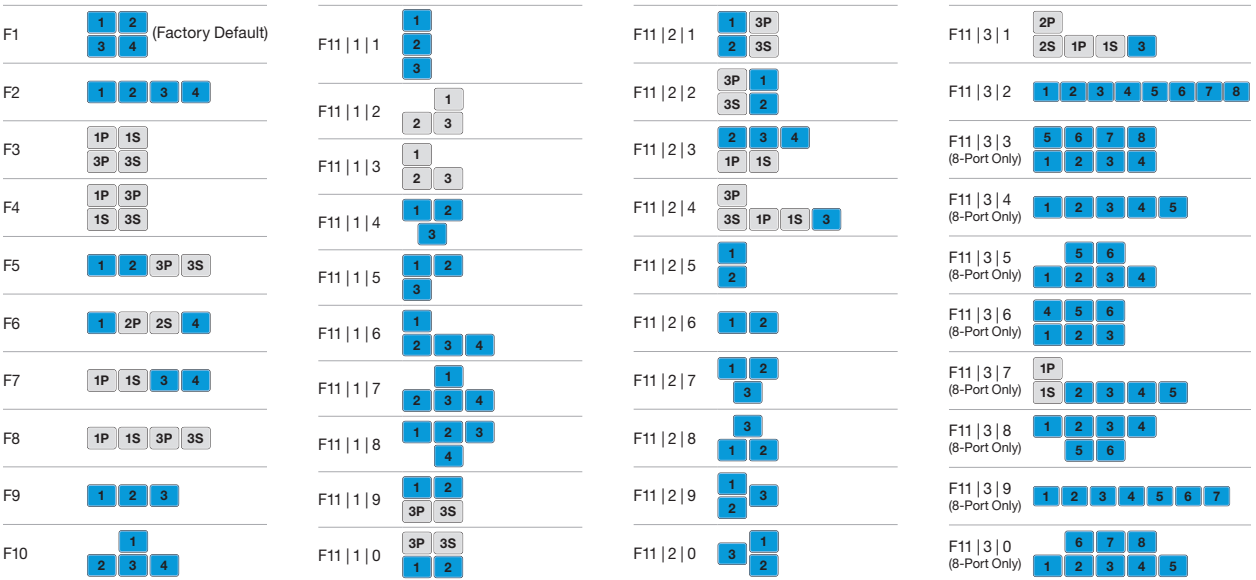
Note: Additional settings can be accessed through Control, Control, F11, x, x (refer to figures 5 and 6).

The loaded configuration will also include the following settings by default:

- All displays are 1920 x 1200 resolution, same size (26” diagonal)
- Mouse acceleration is set to 6
- Mouse speed is set to 5
- SCS is enabled
- Prevent transition while dragging feature is Enabled

Creating a custom configuration file (Optional)

In case the required configuration does not appear on the predefined configurations list, you can create a configuration file using Belkin’s Secure KM Configuration Utility Tool and load it to the Switch. For more information about this option, please refer to Appendix A and Appendix B of this user manual.



***(Figure 4 –** Pre-Defined Configuration List - Using CTRL, CTRL, F11, Fx)*

Mouse Speed Setting

Constant mouse cursor speed is essential for system usability. Having several systems each with a different cursor "ground speed" is detrimental for the user. Belkin's Belkin Secure KM calculates and adjusts the cursor speed across different displays and computers using the geometry and display settings entered by the administrator.

In addition, the Switch settings include a global speed setting with input values between 1 and 10, which can be changed to adjust the cursor speed for all displays. Typical initial setting of cursor speed is 5. After initial use, the exact value can be set based on user inputs.

To increase mouse speed, press CTRL, CTRL, F11, +

To decrease mouse speed, press CTRL, CTRL, F11, -

SCS Enabled / Disabled Setting

Through the SCS enabled / disabled setting, you can disable the mouse cursor tracking function. Once SCS is disabled – the Switch will enable channel selection only through:

1. Front panel push-buttons;
2. Keyboard shortcuts; and:
3. DCU (if connected)

Note: This setting is enabled by default.

Multiple-Head Display Driver Installation

To enable proper KM interaction with computers having multiple heads (more than one display), the Belkin Secure KM Mouse Filter driver software must be installed. This driver is available in an executable .EXE file that can be installed on the target computer. Driver can be loaded from Belkin website. If internet access is not allowed - contact Belkin to order the KM Switch programming Kit (software CD is included in that kit.

Keyboard Shortcuts

The following table describes the keyboard shortcuts available:

Key Sequence	Name	Description
CTRL, CTRL, F11, r	Reset to Factory defaults	Device will reset to factory defaults with all settings and configuration deleted completely.
CTRL, CTRL, F11, f	Freeze	Disable SCS. Switching between systems will not be possible via mouse movement.
CTRL, CTRL, F11, U	Unfreeze	Enable SCS. Switching between systems will be possible via mouse movement.
CTRL, CTRL, F11, +	Increase mouse speed	Mouse speed will be increased.
CTRL, CTRL, F11, -	Decrease mouse speed	Mouse speed will be decreased
CTRL, CTRL, F11, d, c	Setup mode	In the next boot after pressing this key combination the device will boot into setup mode allowing him to communicate with configuration utility.
CTRL, CTRL, F12	Last loaded configuration	Revert to the last externally loaded configuration (configuration loaded via configuration utility).

Operating the Secure KM Switch

Cursor Tracking (SCS Enabled)

Upon powering up, the cursor will be positioned at the center of the primary display of computer #1. The keyboard and audio will be coupled to the same PC where the cursor is active. Once the user moves the cursor to another display, the keyboard and audio will follow that computer.

Front Panel Push Buttons

The default channel is #1 upon powering up. The user can select any other channel by pressing the appropriate front panel push button. The mouse cursor will be positioned at the center of the selected computer display. If computer has multiple heads, then the cursor will be positioned at the center of the primary display. The selected channel is indicated by LED illuminated in the appropriate push button. The keyboard and audio will follow the selected channel.

Prevent transition while dragging feature

The Belkin Secure KM offers a unique feature that further improves usability – Prevent Transition while Dragging. If the user drags an object on one display (while left mouse key pressed), the cursor would not leave that display.

This feature prevents the loss of that dragging action while accidentally crossing display border line.

Cursor Acceleration and Speed

Cursor speed and acceleration is a combination of few factors such as display size, resolution and static settings. If the current settings are not constant across the different displays or not working properly, please ask your system administrator for assistance. Both cursor acceleration and speed can be set by the administrator to reach desired settings.

Important:

If you are aware of potential security vulnerability while installing or operating this product, we encourage you to contact us immediately at the following email address: **gov_security@belkin.com**

The **gov_security@belkin.com** email address is not intended to reach technical support on Belkin products or services.

General

No power, and none of the front panel LEDs is illuminating.

- Check that the power supply or power cable is properly connected to the mains socket.
- Check that DC plug is fully inserted into the switch DC jack (F1DN104K)
- Check that the power cable IEC plug is properly inserted into the AC power inlet jack (F1DN108K).
- Check that the device is powered by using optical mouse with visible red light. If power is not available, change the power supply.
- Check that the power switch at the back of the KM switch (F1DN108K only) is on.

The port selector buttons are not functioning.

If a DCU is being used the channel switching is controlled using the DCU and the port selector buttons on the KM will not work.

Channel select LEDs are blinking with audible repeating clicking sounds.

- This occurs after the configuration is set. Power cycle the unit (disconnect and re-plug the power adapter).
- If the blinking and clicking still persist after power cycling the unit, it is possible that the device anti-tampering system was triggered. Change the unit and call Belkin technical support.

Keyboard

Mouse not working (all channels)

- Check that the mouse is not plugged into keyboard port, and vice-versa.

The computer does not detect my keyboard, or my keyboard does not work when I switch computers or reboot.

- Check that the keyboard you are using is connected properly to the KM Switch.
- Check that the USB cable between the KM Switch and the computer is completely connected.
- Try connecting to a different USB port on the computer.
- Make sure the keyboard works when directly plugged into the computer (the HID USB driver is installed on the computer). Rebooting may be necessary when trying this.
- Make sure you are not using a keyboard with an integrated USB hub or other USB-integrated devices.
- If the computer is coming out of standby mode, allow up to one minute to regain mouse function.
- Try a different keyboard.

The CAPS, NUM, and Scroll Lock lights on my keyboard do not function when I connect to the Switch.

This is normal operation. The lock-state information is fully functional. Due to the security of the Switch and known exploitation of lock-state information for leakages, the LED status is not supported. Please refer to the operating system for verification of the lock-state information for CAPS, NUM, and Scroll Lock.

Certain keyboard functions are not working

Some non-standard keyboard functions are disabled by the switch to prevent security risks. Contact Belkin Tech Support for latest compatibility list.

Mouse

Mouse cursor does not leave primary display to secondary display in multiple-head computer.

Driver was not installed on that computer or not installed properly. Reinstall driver.

The computer does not detect my mouse, or my mouse does not work when I switch computers or reboot.

- Check that the mouse you are using is connected properly to the Switch.
- Check that the USB cable between the Switch and the computer is completely connected.
- Try connecting to a different USB port on the computer.
- Make sure the mouse works when directly plugged into the computer (the HID USB driver is installed on the computer). Rebooting may be necessary when trying this.
- Make sure you are not using a wireless mouse or a mouse with an integrated USB hub or other USB-integrated devices. These are not supported by the switch due to security policy.
- If the computer is coming out of standby mode, allow up to one minute to regain mouse function.
- Try a different mouse.

For extending USB, use only active USB extenders (over CAT5 cable).

APPENDIX A – Secure KM Configuration Utility Software (KMC Creator)

Belkin's Secure KM Configuration Utility (KMC Creator) is an optional software tool that allow for users using the Switch to define their monitor setup and create a KM configuration file. The KM configuration file (.kmc extension) will later be loaded to the Switch that will be configured accordingly.

NOTE: Refer to Appendix B for loading the configuration file to the KM switch using the KMC Loader.

Using the KMC Creator software, administrators can define any number of monitors connected to each computer with different or identical sizes and screen resolutions. The monitors can be deployed in any physical layout. This software also allows removal of unneeded bridges between monitors.

Before You Begin

Please contact Belkin to order the KM Switch Accessory Kit. This kit includes the CD ROM disc containing files for the BelkinKMAdminsetup.exe (installs the KMC Creator and KMC Loader), KMMultiDisplaySetup.exe (installs the Belkin KM Mouse Filter for multi-head display configurations), user manual, and a USB configurator cable.

A KM configuration file is based on the number of computers that will be connected to the KM and the number of monitors each computer will have connected to it.

Make sure you know the sizes and native screen resolution of all monitors connected to all computers that will eventually be connected to that KM switch.

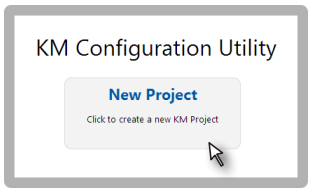
NOTES:

- The KM Creator and Loader software do not need to be loaded on each computer.
- The software is to be loaded to an external computer, so that the connected monitors and computers are accessible for display resolutions.
- This external computer will be used to create and input that created file into the KM.

Step 1 – Create a new Project

Each KM configuration file is called a “KM Configuration Project”. For every setup you will be required to create a new project. Click “Back” to return to the previous stage, at any point during the configuration process.

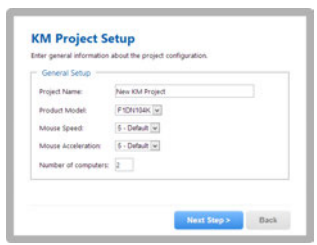
- Click on “New Project”



Step 2 – Enter Project Details

Please enter the requested information in the following manner:

- **Project Name** – The name can be a combination of English characters or numbers. It is advised to use a name that will be reflective of the configuration for example: “Dealer 3 5 monitors”, “Generic Workstation 7”. The project name can be read from the KM after loading.
- **Product Model** – The product model can be found on the back sticker of the KM switch. The Belkin Secure KM can both support two to four computers.
- **Mouse Speed** – This is the default mouse speed for all systems. Change the mouse speed on each computer will not affect the KM mouse speed.
- **Mouse Acceleration** – Same as above.
- **Number of Computers** – The total numbers of computers that will be connected to the KM for this configuration.
- Click “Next Step”



Step 3 – Enter Description

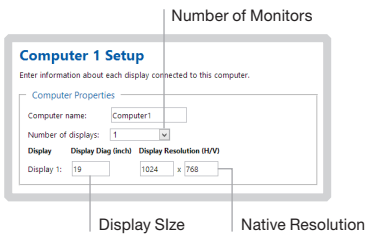
Add the description that will explain the project. The description will appear in the configuration file (.kmc) and can help explain the configuration.

Step 4 – Computer Setup

In this stage, the administrator will define the number and type of monitors connected to each computer as defined is step 2. For every computer, define the number of monitors connected to the computer by selecting it from the drop down menu “Number of Displays”. The maximum number of possible displays is limited to four per computer.

Once the number of monitors is selected, you will be able to enter the size and native resolution for every monitor.

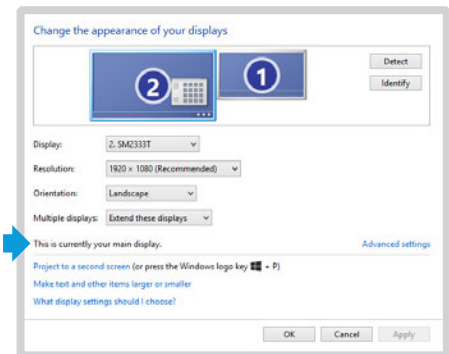
Note, if certain monitor is set to Portrait orientation, the Native resolution should be entered accordingly. For example, for a monitor with a native screen resolution of 1680x1050 which is used in Portrait please enter resolution of 1050x1680.



Multiple-heads setup

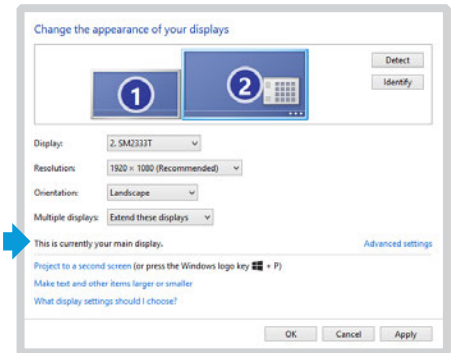
When creating a setup with multiple-heads for one of the computers, there is an additional requirement to enter the Microsoft virtual desktop parameters.

When using multiple monitors on one of the machines, both the KM and MS Extended desktop are controlling the switching between the displays. Both mechanisms need to work synchronously.

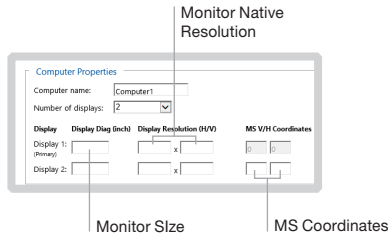


The following instructions and screen captures are based on Windows 7, but can be used for Windows XP and Windows Vista.

- Go to: “Control Panel\All Control Panel Items\Display\Screen Resolution”. You can also right- click your desktop and select screen resolution.
- In the KM configuration dialog you will be asked to provide information regarding your primary display. Primary display is defined as “main display” in the MS “Screen Resolution” dialog. You can see which is defined as your main display by selecting it in the MS dialog.



- Enter the details for you main display as requested in the dialog.



Enter the details for the secondary display. To find out what are the vertical and horizontal MS values, select the secondary monitor and move it slightly. Two numbers will appear on the secondary monitor. Enter both numbers in the dialog.

Step 5 – Place the Displays and Create the Geometry

In the stage, the administrator will create his displays setup. The administrator can drag and drop the monitors that were created in proportion which reflects the size and shape of his actual monitors until he create a view similar to his real environment.

Each display is clearly marked by his computer number and monitor number as entered by the administrator in the previous stage.

Monitors can be connected or have some distance all based on the actual geometry required.

Once the monitors are placed Yellow “bridges” will indicate area in which the mouse “teleport” itself from one monitor to another.

Clicking on one of these areas will remove it which will prevent the mouse cursor from “teleporting” through this bridge.

To enable the bridge between monitors, just drag one monitor to the desired monitor, having them touch each other. Pull apart the monitors, and the bridge should appear between the monitors again.

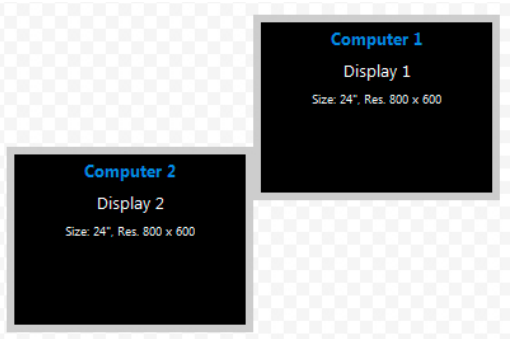
Examples:

Example 1 – The following setup creates a corridor from the top right of monitor 2 computer 2 to the top bottom left of monitor 1 computer 1.

Trying to drag the mouse through the red lines will not work.

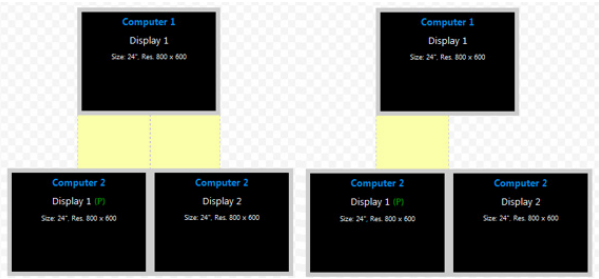
Example 2 – Both configurations below create identical setups in which the mouse cursor moves from the right of computer 2 to the left of computer 1.

Example 3 – The setup shown below is invalid. There is no interface between the two monitor hence the curser will not move. It is recommended to use the below bottom setup instead which will give similar results.



Example 4 – The two setups below are identical except that on the right setup, the user chose to prevent the mouse cursor from moving from: Computer 2, Display2 to Computer 1, Display 1.

This was done by clicking on the Yellow area between the monitors.



Multi Displays Rules

- Computers with multi displays Rule #1 – When one of the computers is configured with multi displays, the setup of those displays connected to the same PC must be similar to that configured on the MS setup.
- Computers with multi displays Rule #2 – All displays connected to the same PC must be stuck to one another. It is impossible to have distance between two displays connected to the same PC.

Step 6 – Complete Setup

Once ready the administrator will press the Complete Setup bottom.

A file with an extension ending in ".kmc" will be generated.

Please refer to Appendix B for instructions on how to upload the .kmc configuration file to the target KM Switch/Switches.

APPENDIX B – Secure KM Configuration Utility (KMC Loader) Software

Belkin's Secure KM Configuration Utility (KMC Loader) allows you to load the configured .kmc file (created per the procedure defined in Appendix A of this manual) into the Secure KM Switch.

NOTE: Please refer to Appendix A for instructions on installing the BelkinKMAdminsetup.exe file (that installs the KMC Creator and KMC Loader programs) and create the .kmc files needed for the following steps.

Setting up the KM Switch for Loading the Configuration (.kmc) File

The KM switch is configured through a cable connected from a PC containing the KMC Loader to the KM USB mouse port. The connection is done via a special USB programming cable that is supplied with each product.

1. Disconnect the mouse from to the Console mouse port of the KM switch.
2. Connect the USB programming cable from a PC USB port to the console USB mouse port of the target KM Switch.
3. Put the KM switch into administration mode by typing on the connected keyboard (CTRL, CTRL, F11, d, c. The KM Switch will click several times to audibly indicate that it needs to be power-cycled.

Loading Utility

Once the KM Switch is in Administration mode and is connected to the PC:

4. Run the loading utility (KMC Loader). Wait for five to ten seconds until the KMC Loader window shows "KM Ready", as shown:

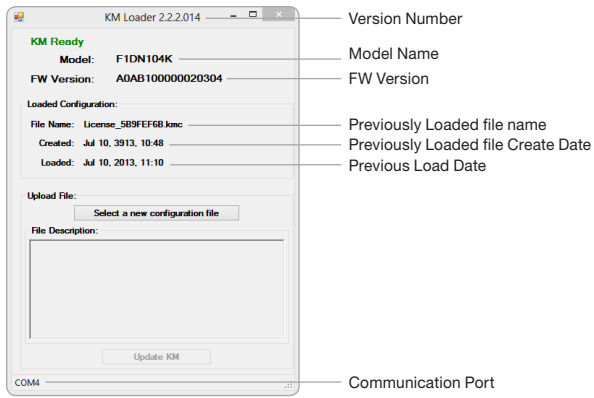


Figure 1 – *KM Loading Utility capture – before selecting a file*

Loading a Configuration file

- Click on the “Select a new configuration file”
- Browse to your .kmc configuration file
- Click on “Update KM”

After the .kmc file is loaded, the following screen will show:

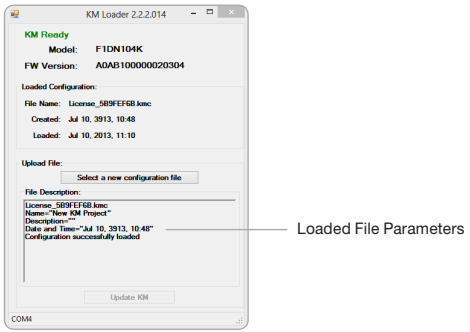


Figure 2 – *KM Loading Utility capture – file selected and loaded*

After loading is complete, restart the KM by disconnecting and then reconnecting power. Reconnect the mouse back to the mouse port and the new configuration will apply.

KM Loader Troubleshooting and Support

The KMC Loader utility communicates with the KM switch to load the configuration file.

The two most common errors when using the loading utility are:

- Configuration file incorrectly formatted
- No Communication with KM switch

When loading a wrong configuration file the Loading Utility will report the issue if possible and will direct the user to load another file.

To avoid this make sure the files you have loaded were created with the KMC Creator configuration tool and that it was not manually modified in any way.

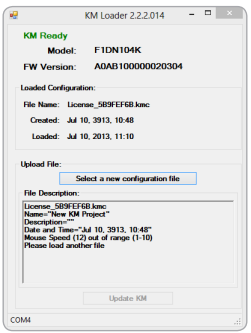


Figure 3 – *KM Loading Utility capture – File not correct*

The loading utility communicates with the KM switch once the KM switch has entered Administrative mode. Once the KM is connected, with the loading utility correctly the utility GUI will say “KM Ready” and the connected port will also appear as seen in figure 1 of Appendix B.

If the utility cannot communicate with KM switch, it will prompt “**KM Not Ready**” and no communication port will appear.

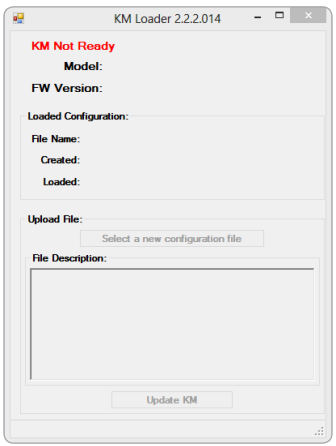


Figure 4 – *Communication between KM and utility has been lost*

To avoid this, ensure that the KM switch is connected via the mouse (not keyboard) Console port on the KM Switch.

Put the KM switch in administrative mode as explained previously.

FCC Statement

DECLARATION OF CONFORMITY WITH FCC RULES FOR ELECTROMAGNETIC COMPATIBILITY

We, Belkin International, Inc., of 12045 E. Waterfront Drive, Playa Vista, CA 90094, declare under our sole responsibility that the products: F1DN104K and F1DN108K to which this declaration relates:

Comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CE Declaration of Conformity

We, Belkin International, Inc., declare under our sole responsibility that the F1DN104K and F1DN108K, to which this declaration relates, are in conformity with Emissions Standard EN55022 and with Immunity Standard EN55024, LVP EN61000-3-2, and EN61000-3-3.

ICES

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme á la norme NMB-003 du Canada.

Belkin International, Inc., Limited 3-Year Product Warranty

What this warranty covers.

Belkin International, Inc. (“Belkin”) warrants to the original purchaser of this Belkin product that the product shall be free of defects in design, assembly, material, or workmanship.

What the period of coverage is.

Belkin warrants the Belkin product for three years.

What will we do to correct problems?

Product Warranty.

Belkin will repair or replace, at its option, any defective product free of charge (except for shipping charges for the product). Belkin reserves the right to discontinue any of its products without notice, and disclaims any limited warranty to repair or replace any such discontinued products. In the event that Belkin is unable to repair or replace the product (for example, because it has been discontinued), Belkin will offer either a refund or a credit toward the purchase of another product from Belkin.com in an amount equal to the purchase price of the product as evidenced on the original purchase receipt as discounted by its natural use.

What is not covered by this warranty?

All above warranties are null and void if the Belkin product is not provided to Belkin for inspection upon Belkin's request at the sole expense of the purchaser, or if Belkin determines that the Belkin product has been improperly installed, altered in any way, or tampered with. The Belkin Product Warranty does not protect against acts of God such as flood, lightning, earthquake, war, vandalism, theft, normal-use wear and tear, erosion, depletion, obsolescence, abuse, damage due to low voltage disturbances (i.e. brownouts or sags), non-authorized program, or system equipment modification or alteration.

How to get service.

To get service for your Belkin product you must take the following steps:

1. Contact Belkin International, Inc., at 12045 E. Waterfront Drive, Playa Vista, CA 90094, Attn: Customer Service, or call (800)-282-2355, within 15 days of the Occurrence. Be prepared to provide the following information:
   a. The part number of the Belkin product.
   b. Where you purchased the product.
   c. When you purchased the product.
   d. Copy of original receipt.
2. Your Belkin Customer Service Representative will then instruct you on how to forward your receipt and Belkin product and how to proceed with your claim.

Belkin reserves the right to review the damaged Belkin product. All costs of shipping the Belkin product to Belkin for inspection shall be borne solely by the purchaser.

If Belkin determines, in its sole discretion, that it is impractical to ship the damaged equipment to Belkin, Belkin may designate, in its sole discretion, an equipment repair facility to inspect and estimate the cost to repair such equipment. The cost, if any, of shipping the equipment to and from such repair facility and of such estimate shall be borne solely by the purchaser. Damaged equipment must remain available for inspection until the claim is finalized. Whenever claims are settled, Belkin reserves the right to be subrogated under any existing insurance policies the purchaser may have.

How state law relates to the warranty.

THIS WARRANTY CONTAINS THE SOLE WARRANTY OF BELKIN. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR, EXCEPT AS REQUIRED BY LAW, IMPLIED, INCLUDING THE IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SUCH IMPLIED WARRANTIES, IF ANY, ARE LIMITED IN DURATION TO THE TERM OF THIS WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

IN NO EVENT SHALL BELKIN BE LIABLE FOR INCIDENTAL, SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR MULTIPLE DAMAGES SUCH AS, BUT NOT LIMITED TO, LOST BUSINESS OR PROFITS ARISING OUT OF THE SALE OR USE OF ANY BELKIN PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This warranty gives you specific legal rights, and you may also have other rights, which may vary from state to state. Some states do not allow the exclusion or limitation of incidental, consequential, or other damages, so the above limitations may not apply to you.

GS 5/15/2013

Reporting Belkin Product Security Vulnerability

If you are aware of potential security vulnerability with any Belkin Government product, we encourage you to contact us immediately at the following email address: **gov_security@belkin.com** or our technical support line at: **1-800-282-2355**.

After your communication is received, Belkin Government personnel will contact you to follow up. To ensure confidentiality, Belkin encourages you to use our PGP encryption key.

The **gov_security@belkin.com** email address is not intended to reach technical support on Belkin Government products or services.

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